Remarks

Applicants respectfully request entry of the amendment to the specification hereinabove. Reconsideration of the application in view of the following remarks is respectfully requested, and allowance of all pending claims is respectfully solicited. Claims 1-20 remain pending.

35 U.S.C. §102(b) Rejection over U.S. Patent No. 6,389,420

In the Office Action dated September 21, 2006, claims 1-20 were rejected initially under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 6,389,420 issued to Vahalia, et al. (hereinafter, "Vahalia"). Applicants respectfully traverse this rejection because the patent cited does not teach or suggest all of the elements of applicants' claimed invention and, therefore, does not anticipate applicants' claimed invention as explained below.

Applicants' invention generally pertains to a method and system for managing requests to access data in a communications environment. In one aspect of the present invention, a request manager receives a request associated with meta data corresponding to data that is maintained separately from the meta data. In another aspect, the request manager informs a data object manager of an anticipated request that may be received by the data object manager to enable it to prepare for the anticipated request. The data object manager commences preparing for the anticipated request in response to being informed of the anticipated request to facilitate a reduction in data access time. In one example of a computing environment utilizing one or more aspects of the invention, a storage subsystem comprising a data object manager prepares for the anticipated request by pre-fetching data blocks from storage media of the storage subsystem into a cache of the storage subsystem.

In contrast, Vahalia is generally directed to distributing file locks to clients in a data network to permit the clients to share access to file data in storage. More particularly, Vahalia discloses a file manager granting a file lock, which expires after a period of time, to a client as a solution to the problems caused by the file manager not receiving a subsequent notification of the

client's release of the file lock (col. 2, lines 10-21 and lines 33-46). The client may access the file data until the lock granted by the file manager expires (col. 2, lines 33-46). After the lock on the file data that was granted to a first client expires, the file manager may grant a file lock for the same file data to a second client without a conflict, even if the file manager has not received a lock-release notification from the first client, because the first client will only access data within a designated time period beginning at the grant of the lock (col. 2, lines 29-46).

With the differences summarized above as a background, applicants respectfully submit that Vahalia does not teach or suggest "informing, by the manager, another manager of an anticipated request to be received by the another manager to enable the another manager to prepare for the anticipated request," as recited in claim 1. That is, in accordance with one aspect of the present invention, a first manager informs a second manager of an anticipated request from a client computer to be received by the second manager to enable the second manager to prepare for the anticipated request. For example, in one embodiment of a request management system for a communications environment in accordance with an aspect of the present invention, meta data corresponding to file data is maintained in a request manager separately from the file data stored in a storage subsystem. When the request manager receives a request from a client computer for a lock for particular range of disk blocks, for example, the lock request is an indication that the client computer intends to perform input/output (I/O) operations on that range of disk blocks in the future (specification paragraph [0022]). In this embodiment, a request manager, which manages file meta data, informs a data object manager, such as a storage subsystem controller of the storage subsystem, of an anticipated input/output (I/O) request from a client computer for a particular range of disk blocks after the request manager receives a request for a lock on that range of disk blocks (specification paragraph [0022]). If the data object manager determines that the disk blocks subject to the anticipated request are not in the cache of the storage subsystem, the data object manager may prepare for an anticipated request for these disk blocks by beginning to fetch the data blocks from storage disks of the storage subsystem and storing them in the storage subsystem's cache. Advantageously, data access latency may be reduced as a result of the data object manager of the storage subsystem initiating disk

input/output in order to store disk blocks that may be subject to a future access request in the storage subsystem's cache before receiving a request for those disk blocks.

The Office Action alleges that Vahalia discloses, in Figures 6-8, a method of managing requests in a communications environment that includes the step of informing, as recited in claim 1. That is, the Office Action alleges that Vahalia discloses a request manager informing another manager (for example, a data object manager) of an anticipated request to enable the other manager to prepare for receiving the anticipated request. Figures 6 and 7 of Vahalia show a flow chart of a procedure used by a client to access data in a file (col. 4, lines 35-38). Figure 8 of Vahalia shows a flow chart of a procedure used by a file manager to respond to a file access request from a client (col. 4, lines 35-38). Applicants respectfully submit that they found no teaching or even suggestion of a request manager informing another manager of an anticipated request in Figures 6, 7, and 8 of Vahalia, and the Office Action does not cite any specific element of these figures as disclosing this feature.

Because Vahalia fails to teach or even suggest all elements of applicants' claimed invention, as recited in claim 1, applicants respectfully submit that claim 1 is patentable over the cited patent. Applicants respectfully submit that independent claims 8 and 15 for a request management system and program storage device embodying at least one program to perform a method of managing requests in a communications environment, respectively, also recite subject matter that is patentable over the cited patent for the reasons stated above with respect to claim 1. Also, claims 2-7, 9-14, and 16-20, which depend from claims 1, 8, and 15, are patentable for the reasons stated above with respect to claims 1, 8, and 15 as well as for their own characterizations.

For example, claim 2 additionally recites "preparing by the another manager for the anticipated request, said preparing responsive to said informing." In other words, in response to the step of informing, as recited in claim 1, the another manager (i.e., the second manager) prepares for the *anticipated request*. The Office Action alleges that Vahalia discloses this additional feature in column 10, lines 44-59. However, applicants respectfully submit that a closer reading of the cited text reveals that this section instead discloses that a file manager in

Vahalia's system acts as a proxy router for a client that makes a request for file access if the file manager that receives the request does not own the file. In particular, if the file manager determines that it is not the owner of the file for which a client requests a lock, the file manager forwards the request for a file lock to the file manager that owns the file and returns any reply from the other file manager to the client. Applicants respectfully submit that a first manager simply *forwarding a request from a client* to a second manager is quite different from a first manager *informing* a second manager of an *anticipated request* to be received by the second manager. "[A] request associated with meta data" and "an anticipated request," as recited in claim 1, are different requests, whereas, in Vahalia, the same request received by the first manager is forwarded to the second manager. Moreover, preparing by the second manager for the *anticipated request* to be received in response to being informed of the anticipated request is very different from the second manager responding to the forwarded request in Vahalia. Therefore, Vahalia also does not teach or suggest the step of preparing, as recited in claim 2.
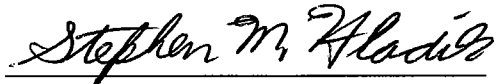
For all of the reasons stated above, applicants respectfully submit that claims 1-20 are patentable over the cited patent. Therefore, withdrawal of the rejection of claims 1-20 under 35 U.S.C. §102(b) over Vahalia is respectfully requested, and allowance of all claims is respectfully solicited.

Conclusion

In view of the remarks hereinabove, applicants respectfully request allowance of pending claims 1-20.

Should the Examiner wish to discuss this case with applicants' attorney, the Examiner is invited to telephone their representative at the number listed below.

Respectfully submitted,

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